

**What is claimed is:**

1. A stage for building a platform, said platform for building a biochip, said stage comprising:

- 5 (a) a carrier having a first side which is hydrophilic and optically inactive; and
- (b) an aqueous matrix disposed on said first side for embedding cross-linking agents at least at the top surface of said matrix, said cross-linking agents for cross-linking sensing elements to the top surface of said matrix, said sensing elements being reactive to one or more analytes,

thereby forming a stage for building a platform, said platform for building a biochip.

15 2. The stage of claim 1 wherein the carrier is selected from the group consisting of glass, silicon, fused silica, plastic, ceramic, metal, semiconductor materials, polyester, polystyrene, polyethylene, paper, woven and non-woven textiles.

20 3. The stage of claim 1 wherein said matrix comprises one or more agents selected from the group consisting of agarose, gelatin, and polyacrylamide.

4. The stage of claim 3 wherein said matrix further comprises one or more agents selected from the group consisting of light blocking agents, buffers, humectants, and surfactants.
5. The stage of claim 4 said light blocking agent comprises one or more agents selected from the group consisting of iron oxide, titanium dioxide, and carbon black.
6. The stage of claim 4 where said buffer comprises one or more agents selected from the group consisting of HEPES, Methane Ethane Sulphonic Acid, Tris, and phosphate.
7. The stage of claim 4 wherein said humectants comprises one or more agents selected from the group consisting of glycerin, oils, sugars, and detergents.
8. The stage of claim 4 wherein said surfactant comprises one or more agents selected from the group consisting of ionic, non-ionic, zwitterionic, and amphoteric surfactants.
9. The stage of claim 1 wherein said matrix comprises two or more levels.



15. The stage of claim 12 wherein said humectants comprises one or more agents selected from the group consisting of glycerin, oils, sugars, and detergents.
16. The stage of claim 12 wherein said surfactant comprises one or more agents selected from the group consisting of ionic, non-ionic, zwitterionic, and amphoteric surfactants.
17. The stage of claims 1 or 9 wherein said aqueous matrix further comprises one or more cross-linking agents thereby forming a platform.
18. A platform for building a biochip, said platform comprising:
- (a) a carrier having a first side which is hydrophilic and optically inactive;
  - (b) an aqueous matrix disposed on said first side for embedding cross-linking agents at least at the top surface of said matrix, said cross-linking agents for cross-linking sensing elements to the top surface of said matrix, said sensing elements being reactive to one or more analytes; and
  - (c) cross-linking agents embedded in said matrix for cross-linking said sensing elements,
- thereby forming a platform for building a biochip.

19. The platform of claim 18 wherein the carrier is selected from the group consisting of glass, silicon, fused silica, plastic, ceramic, metal, semiconductor materials, polyester, polystyrene, polyethylene, paper, woven and non-woven textiles.
20. The platform of claim 18 wherein said matrix comprises one or more agents selected from the group consisting of agarose, gelatin, and polyacrylamide.
21. The platform of claim 20 wherein said matrix further comprises one or more agents selected from the group consisting of light blocking agents, buffers, humectants, and surfactants.
22. The platform of claim 21 said light blocking agent comprises one or more agents selected from the group consisting of iron oxide, titanium dioxide, and carbon black.
23. The platform of claim 21 where said buffer comprises one or more agents selected from the group consisting of HEPES, Methane Ethane Sulphonic Acid, Tris, and phosphate.

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35. The platform of claim 31 wherein said surfactant comprises one or more agents selected from the group consisting of ionic, non-ionic, zwitterionic, and amphoteric surfactants.

36. The platform of claim 28 wherein said aqueous matrix comprises one or more cross-linking agents selected from the group consisting of heterobifunctional linkers, homobifunctional linkers, and zero-length cross-linkers.

37. The platform of claim 28 further comprising sensing elements cross-linked to the top surface of said matrix thereby forming a biochip.



38. A biochip for sensing analytes, said biochip comprising:

(a) a platform comprising:

- i. a carrier having a first side which is hydrophilic and optically inactive;
- ii. an aqueous matrix disposed on said first side for embedding cross-linking agents at least at the top surface of said matrix, said cross-linking agents for cross-linking sensing elements to the top surface of said matrix, said sensing elements being reactive to one or more analytes; and
- iii. cross-linking agents embedded in said matrix for cross-linking said sensing elements,

(b) sensing elements cross-linked to said cross-linking agents in the top surface of said matrix,

thereby forming a biochip.

39. The biochip of claim 38 wherein said cross-linking agents are selected from the group consisting of heterobifunctional linkers, homobifunctional linkers, and zero-length cross-linkers.

40. The biochip of claim 38 wherein the carrier is selected from the group consisting of glass, silicon, fused silica, plastic, ceramic, metal, semiconductor materials, polyester, polystyrene, polyethylene, paper, woven and non-woven textiles.

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41. The biochip of claim 38 wherein said matrix comprises one or more agents selected from the group consisting of agarose, gelatin, and polyacrylamide.

42. The biochip of claim 41 wherein said matrix further comprises one or more agents selected from the group consisting of light blocking agents, buffers, humectants, and surfactants.

43. The biochip of claim 42 wherein said light blocking agent comprises one or more agents selected from the group consisting of iron oxide, titanium dioxide, and carbon black.

44. The biochip of claim 42 where said buffer comprises one or more agents selected from the group consisting of HEPES, Methane Ethane Sulphonic Acid, Tris, and phosphate.

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45. The biochip of claim 42 wherein said humectants comprises one or more agents selected from the group consisting of glycerin, oils, sugars, and detergents.

5 46. The biochip of claim 42 wherein said surfactant comprises one or more agents selected from the group consisting of ionic, non-ionic, zwitterionic, and amphoteric surfactants.

47. The biochip of claim 38 wherein said matrix comprises two or more levels.

48. The biochip of claim 47 wherein the carrier is selected from the group consisting of glass, silicon, fused silica, plastic, ceramic, metal, semiconductor materials, polyester, polystyrene, polyethylene, paper, woven and non-woven textiles.

49. The biochip of claim 47 wherein said levels independently comprise one or more agents selected from the group consisting of agarose, gelatin, and polyacrylamide.

50. The biochip of claim 49 wherein said levels further independently  
comprise one or more agents selected from the group consisting of light  
blocking agents, buffers, humectants, and surfactants.

5 51. The biochip of claim 50 wherein said light blocking agent comprises one  
or more agents selected from the group consisting of iron oxide, titanium  
dioxide, and carbon black.

52. The biochip of claim 50 wherein said buffer comprises one or more  
agents selected from the group consisting of HEPES, Methane Ethane  
Sulphonic Acid, Tris, and phosphate.

53. The biochip of claim 50 wherein said humectants comprises one or more  
agents selected from the group consisting of glycerin, oils, sugars, and  
detergents.

54. The biochip of claim 50 wherein said surfactant comprises one or more  
agents selected from the group consisting of ionic, non-ionic,  
zwitterionic, and amphoteric surfactants.

55. The biochip of claim 47 wherein said cross-linking agents comprise one or more agents selected from the group consisting of heterobifunctional linkers, homobifunctional linkers, and zero-length cross-linkers.